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Planting Seeds

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Report Highlights:

China continues to be one of the world's largest seed producers and is self-sufficient in planting seeds for its main crops, including grain, major oilseeds and cotton. Seed production and marketing remains fragmented, but the trend for restructuring the sector is accelerating. In MY06/07, U.S. grass/forage seed exports are expected to continue growing and reach \$25 million in 2007 due to the strong demand in the landscaping industry. Sunflower planting seeds will likely reach \$12 million due to a favorable dollar currency. Opportunities exist for U.S. companies, despite some restrictive policies related to seed investment and trade.

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Executive Summary

China's seed production and supply is expected to be stable for MY06/07. In MY06/07, U.S. seed exports to China are likely to continue growing mainly due to increased demand for grass and sunflower planting seeds. China continues to be one of the world's largest seed producers, and is self-sufficient in planting seeds for its main crops, including grain, major oilseeds, and cotton. China's seed production and marketing is still fragmented but the trend toward restructuring the sector is quickly accelerating. The current seed production and marketing structure and seed administrative system has complicated matters for Chinese authorities involved in Seed Law enforcement. As the seed industry reform further develops, coupled with increased consolidation, seed regulation enforcement is expected to improve. Nonetheless, Intellectual Property Rights (IPR) infringement and counterfeit seed trade remains a serious challenge for all seed developers/traders. Despite China's restrictive policy on foreign investment, opportunities exist in seed investment and exports to China.

Production

General situation

Although no official date is available China is believed to be one of the world's largest seed producers. It is self-sufficient in planting seeds for its main crops, including grain, major oilseeds, and cotton. This trend is likely to continue throughout MY06/07, and well after. Although official seed production statistics are not available, industry sources estimate annual seed use at 12.5 MMT with total seed sales for MY05/06 grossing over US\$2.5 billion. Additionally, an official media source reported that, the total annual commercial seed production is estimated at 8.5 MMT, seed-processing capacity is estimated at 6.5 MMT of which 1.9 MMT were treated seeds. China is home to 815 advanced seed processing lines in operation. With a total of 56 state-level seed warehouses, the seed storage capacity stands at 4.3 MMT.

Seed self-sufficiency rates for rice, corn, wheat and soybeans are 100 percent, with cotton seeds at 85 percent and vegetable and fruit/melon seeds at 95 percent. The traditional practice of farmer-saved seeds for major crops is declining. China's low labor cost enables it to produce hybrid seeds for overseas markets at lower costs compared to other countries. In fact, China's seed exports for July 2005 to June 2006 marketing Year (MY05/06) surged by 24 percent in value over MY04/05, with vegetable, rice and fruit/melon seed leading the pack.

Seed production and supply expected to be stable for MY06/07

Maintaining a stable supply of high quality seeds for major grain crops is a stated priority for China's Ministry of Agriculture (MOA). According to MOA, in MY05/06, high quality seed varieties cover 95 percent of the market, and accounted for 36 percent of the agriculture production growth. In an effort to improve seed production, in 2007, two more hybrid rice bases will be constructed in Sichuan Province and two new hybrid corn bases will be built in Gansu Province with financial support of \$2.5 million from MOA, respectively. Another 14 conventional grain crop seed producing bases in major grain provinces will be built with MOA support of \$1.25 million per base.

MOA conducts a quality sample survey for grain crop seeds every year. The 2005 survey results showed seeds that met the national quality standard were 86 percent for hybrid corn, and 95 percent for hybrid rice. No significant change occurred from the previous year, however, the low "purity" of seeds continues to be a problem. Based on the survey results, two seed enterprises had their business licenses revoked because their seed quality could not meet the standards in the last two consecutive years.

Rice--Rice seed supply during MY06/07 is forecast to be 50,000 MT. Given the surplus production, prices declining. According to MOA, the 2006 breeding area for hybrid rice is similar to that for 2005 at about 103,000 hectares (Ha). Total production is estimated at over 280,000 MT, despite flood and drought conditions in some of the producing provinces. Hybrid rice seed breeding is conducted mainly in Hainan, Hunan and Sichuan provinces. Industry contacts report that the hybrid rice's planted area for 2006 is estimated at 15 MHa, slightly increasing from the previous year and accounting for 51 percent of China's total rice area, as compared to the 50 percent in 2005.

Corn--Corn seed supply for MY06/07 is forecast to outweigh the domestic demand, with an estimated surplus of 900,000 MT. Prices are expected to fall by about 10 percent. According to MOA, the 2006 hybrid corn seed area is estimated at 327,000 Ha with production at 1.6 MMT. Together with the 300,000 MT of carry-in stocks, total supply will likely to reach 1.92 MMT for MY06/07. High production reflects the increasing competition in the corn seed sector. Despite the surplus, MOA officials maintain that the market situation will remain stable because the leading seed companies' sales will likely increase due to strong demand for major varieties. Hybrid corn varieties dominate seed corn use, accounting for over 75 percent of China's total planted area. China's largest corn-breeding facility is located in Gansu Province.

Wheat--The majority of wheat seeds are conventional varieties, most of which are produced in China's northern provinces.

Cotton – Cotton seed breeding is increasingly industrialized and commercialized. Both industry insiders and farmers reported that the traditional practice of farmer-saved cotton seed is declining. Based on survey results of China Cotton Research Institute, 68 percent of cotton farmers purchased seeds in 2006, up 5 percent over the previous year; planted varieties increased to 456 in 2006, however, only 53 varieties' area coverage reached 0.5 percent with the highest variety's area coverage at merely 6 percent; although the number of new varieties surged, the yields did not increase. In 2006, the planted area for biotech (BT) varieties is estimated at more than 3.6 MHa, out of the total 5.38 MHa of planted area. MOA reported that domestic BT varieties' market share is increasing steadily to about 73 percent of the total in 2005. Market share for domestic BT cotton varieties for 2006 is likely to be more than 75 percent although no official data is available. Some Chinese sources claim that Chinese-produced BT cotton varieties are more adapted to the local environment and the seeds are cheaper than foreign ones.

Other crops--Several conventional soybean varieties of "high oil content" are being planted in China's four northeastern provinces. The "double low" (low erucic acid and glucosinolate content) rapeseed varieties account for over 70 percent of the planted area. In September 2006, the Oilseeds Research Institute of China's Academy of Agricultural Science (CAAS) reported that it had developed a new rapeseed variety with about 55 percent oil content. The Institute will be promoting rapeseed production in South and Central China for bio fuel use. Vegetable and fruit/melon seeds are produced throughout China, which enables them to be bred and marketed to suit local preferences and requirements. Export-oriented vegetable seed production is concentrated in the eastern China provinces, mainly Shandong.

Seed industry reform and consolidation continues

Seed production and marketing continues to be highly fragmented, but the trend for restructuring the sector is quickly accelerating. On May 19, 2006, China's State Council issued GuoFaBan (2006) No. 40 decree on "Recommendations on Expediting Seed Management Reform and Strengthening Marketing Supervision". The Decree stipulates that the "Complete Segregation of all Seed Trading Entities from the Agricultural Administrative

Agencies" should be completed before the end of June 2007. Seed trading entities who do not comply with the measure will not be authorized to renew their seed trading licenses (issued by the Ministry of Agriculture (MOA)) and business licenses (issued by the Ministry of Commerce (MOFCOM)). The Decree also describes the restructuring process for the segregation of seed entities, and encourages ownership transfer, mergers and acquisitions etc. As a matching policy, on June 8, 2006, MOA issued (2006) No. 37 circular, requesting all related agricultural bureaus to implement the State Council's No. 40 decree. Better integration of variety research and development, seed breeding, and the distribution chain remains a goal for policy makers, industry associations, and research institutes. Although there has been some consolidation in the industry in recent years, it may take years before flagship enterprises replace the thousands of small players.

The fragmented seed market originates from China's old planned economy, which created a model of segregated research/development, breeding, and marketing. Industry insiders estimate that the total number of "seed companies" is declining due to the restructuring of the industry. In November 2006, MOA released the second listing of the 50 largest seed producing enterprises based on their comprehensive strength and sales value in the past two years. Industry sources, however, reported that the largest annual seed sales value among the top-50 seed enterprises is still below \$ 100 million for MY05/06. An MOA official reported that the market share of the "50 largest" increased to 30 percent in MY04/05, from 15 percent in MY00/01, hinting to a consolidation trend within the industry, albeit at a rather slow pace. A few of these companies have established comprehensive variety development, seed breeding, and marketing systems. Few, however, have their own research and development facilities. Some of these companies only engage in seed sales. The traditional seed breeding and distribution model still prevails. Developers are mostly state or provincial sponsored agricultural research institutes and universities, while seed companies are responsible for breeding and marketing seeds to farmers. It is worth noting that researchers and developers are increasingly involved in seed breeding and marketing through established breeding enterprises. Some new seed companies also have set up their own research facilities, which enable them to develop their own new varieties and retain intellectual property rights. In most cases, however, breeding enterprises may opt to purchase the new variety from a seed developer.

Another serious problem is that there are too many varieties for each crop in the market (in particular for corn, rice and cotton), while few of them show significant genetic advantage, thus the coverage of each variety is usually limited. This increases the difficulty and complexity in quality supervision and marketing of new varieties.

China's foreign investment policy in the seed sector remains unchanged (CH7048). As a result of China's policy restraints, foreign investment in the seed sector remains low, particularly in grain, oilseeds and cotton. Industry sources report that only a few joint ventures were set up for breeding hybrid corn and BT cotton. Foreign investment in non-major agricultural crops (including vegetables, fruits and flowers), however, increased in 2006. Investors usually introduce new varieties into China taking advantage of the relatively lower labor cost. Additionally, seeds produced can be marketed both in China and abroad. Industry sources reported that European and East Asian capital has been invested in Shandong Province for vegetable, fruit and flower seeds production.

Non-governmental investment in the development of new varieties is increasing. According to MOA, based on the approved new crop varieties and the 2005 new crop variety application, non-governmental investment in R&D of new crops accounted for 83 percent, while governmental investment declined to stand at 17 percent.

Although no official data exists, China's investment in biotechnology is believed to be significant. One senior expert said annual investment has been \$100 million since 2000, and was estimated to have increased to \$500 million in 2005. MOA sources stressed that one of its priorities in the years to come is to increase the development of new crop varieties to maintain the domestic seed supply and upgrade comprehensive agricultural strength.

Instead of concentrating on increasing yields, the focal point of future crop seed research will be to improve quality and stress resistance for optimal production efficiency. Hybrid seed production continues to expand as domestic growers demand trait-specific seeds.

Agricultural Planted Area and Yields

Total sown area for all crops is generally stable at more than 150 million hectares. Grains and oilseeds take the largest share, but the planted area for vegetable and other horticultural products is increasing. Multiple cropping, although declining, results in enormous year-round seed demand. It is estimated that the 2006 sown area for grain crops increased by 1.6 MHa relative to that for 2005 because of the government's efforts to increase grain production. Total sown area for all crops is unlikely to fluctuate dramatically because of the limited availability of arable land relative to China's population. However, the planted area designated for individual crops may vary slightly from year to year in response to the market.

Agricultural Crop Sown Area in Million Hectares

Year/Crop	Rice	Wheat	Corn	Soybeans	Cotton	Rapeseed	Tubers	Peanut	Vegetables	Sunflower
2001	28.8	24.7	24.3	9.5	4.8	7.1	10.2	5	16.4	NA
2002	28.2	23.9	24.6	9.6	4.2	8.5	9.9	5	17.4	NA
2003	26.5	22	24	9.5	5.1	8	9.7	5.4	18	1.2
2004	28.4	21.6	25.4	9.6	5.7	7.3	9.5	4.7	18.5	0.9
2005	28.8	22.8	26.4	9.6	5.1	7.3	9.5	4.7	17.7	1
*2006	29.2	23.4	27	9.1	5.3	6.7	9.5	4.7	17.7	1

Source: State Statistics Bureau. *Estimates by USDA/FAS/China.

Crop yields remain stable, despite new hybrids and innovations in the planting seed sector. Some experts suggest that as more farmers migrate to cities, reduced labor input, coupled with inadequate rotation will stymie genetic improvement and ultimately output. Still, China's cotton yield remains high and is likely to increase further along with the adoption of biotechnology. If the government is to achieve its concurrent goals of food self-reliance and rural development, then it must encourage development and planting of new high-yielding varieties that require fewer inputs.

Agricultural Crop Yields in Metric Ton per Hectare

Year/Crop	Rice	Wheat	Corn	Soybeans	Cotton	Rapeseed	Peanut
2001	6.2	3.8	4.7		1.1		
2002	6.2	3.8	4.9	1.7	1.2	1.5	3
2003	6.1	3.9	4.8	1.6	1	1.6	2.9
2004	6.3	4.3	5.1	1.8	1.1	1.8	3
2005	6.3	4.3	5.3	1.7	1.1	1.6	3
*2006	6.2	4.3	5.3	1.7	1.2	1.8	3

Source: State Statistics Bureau. *Estimates by USDA and FAS/China.

Trade

Imports - China's seed imports for MY06/07 are forecast to increase from the previous year. Imports of vegetable seeds, grass seeds are also forecast to grow. Import value for MY05/06 stood at US\$106 million, up 37 percent over MY04/05. Vegetable, grass/forage and sunflower seeds accounted for 47, 30 and 13 percent of the total value of seed imports, respectively. Increased vegetables, grass/forage and sunflower seeds imports mainly supported the MY05/06 import growth. Industry sources explained that the government's financial support for the "Grain for Green¹" program was highlighted in the 11th five-year period (2006-2010). In 2006, the Chinese government appropriated US\$125 million in grassland restoration in western provinces. Another US\$125 million was appropriated to reduce desertification in the north part of Beijing and Tianjin. Part of these funds were used to purchase grass/forage seeds. In the longer term, most industry insiders expect grass seed imports to increase because the pastureland restoration projects in the western provinces remains a long-term goal for policy makers, and landscaping in China's burgeoning cities continues. Increased vegetable seeds imports reflect a more diversified demand for varieties by the consumers with increased disposable incomes. The trend is also driven by strong growth of vegetable product exports, which increased by 19 percent in the first two quarters of 2006. Thus, many industry experts believe vegetable seed imports will continue growing in next few years. Meanwhile, the rapid growth of China's dairy sector (CH5075) is driving the demand for high quality forage seeds.

In MY06/07, seed imports from the United States are forecast to increase mainly because of the strong demand for grass seeds. MY05/06 imports from the United States were valued at US\$35.9 million, up 33 percent from the previous year. Most of this increase is attributed to increased sunflower seed imports. According to industry sources, the sunflower seed imports for MY06/07 will continue however, the growth rate is likely to level off. Japan continued to be the largest supplier of vegetable seeds to China with a total export value of US\$14 million for MY05/06, although Thailand has ranked the highest in export volume to China for the past three years.

Exports - Seed exports are forecast to continue growing in MY06/07 due mainly to China's low cost structure for seed breeding operations. Total seed exports for MY05/06 rose rapidly to US\$75.1 million, up by 24 percent over MY04/05. Vegetable, rice, and fruit/melon seed export values continue to rank the highest, accounting for 50, 18 and 9 percent, respectively. Hybrid rice seed exports, mainly to Viet Nam and Bangladesh, remain unchanged. Industry insiders reported that hybrid rice seed exports to other Asian countries are likely to increase steadily in the foreseeable future due to China's technical advantages and the successful adaptability of China's hybrid rice to climate and environment. Vegetable seed exports also increased to US\$37.8 million in MY05/06, a 31-percent increase compared to MY04/05.

In MY05/06, the United States, the Netherlands and Korea were the three largest export markets for Chinese vegetable seeds in value. Korea, however, ranked first in volume. The value of vegetable seed exports to the United States reached US\$11.6 million, up by 33 percent from MY04/05. Strong exports reflect China's price advantage in seed breeding whether these are imported (for re-export) or new domestic varieties. According to MOA, contracted seed breeding by foreign seed trade companies is increasing along with the improved implementation of regulations on the "Protection of New Plant Varieties".

¹ A program that pays farmers to plant trees or grasses instead of row crops.

Marketing Entry and Promotion

China's onerous investment, import, and marketing laws and regulations for the planting seed sector remain unchanged. The country's policy on foreign investment in the seed sector (CH2012 and CH7048) still prevents any investment by foreign enterprises in the transgenic planting seed sector, while investment for "main crop" varieties is limited to a minority share. Many foreign seed companies, however, have established representative offices in China. They normally work with a few importers, but establish vast networks and relationships with seed wholesalers and vendors in regions or markets with the best potential. When introducing new varieties to China, companies usually demonstrate seed quality in trial plots before they decide what varieties to market to farmers. In general, farmers purchase seeds from local county or town level seed stations. Seed vendors mainly promote the seeds that have the highest profit margin; therefore, it is important to note that price is an important concern when selling seeds to small-scale household farmers.

In the recent years farmer cooperatives have facilitated the dissemination and trade of BT cotton seeds. A newly adopted legislation passed by the National People's Congress is expected to benefit farmer cooperatives on production and marketing. Cooperatives will also help farmers become more self-sufficient and market-oriented.

Trial demonstration is the best way to showcase farmers the advantages of newly developed varieties. This is commonly done by domestic seed enterprises. Local officials/experts and farmers are usually invited and briefed, especially during harvest season. It is also effective to provide free seeds to farmers or farmer cooperatives for trial planting. Trade shows are another way to expose farmers to new varieties. For example, China's National Agriculture Technology Extension Center/MOA and China Seed Association sponsor a regular national seed fair with support from the leading (mainly domestic) seed companies. The fair principally focuses on main crops but also include vegetable and fruit seeds/varieties. The 2006 fair was held in Xi'an, Shan'xi Province, in November. Over two thousand seed-related entities participated. Many regional (one or several provinces) or specialized (such as vegetable or oilseeds seed fairs) are held regularly such as "Seed Fairs" held in Guangzhou, Wuhan, Hefei, Beijing, Yangling and Harbin etc. There are also several new variety transfer fairs held regularly, which provide a platform for variety developers and seed companies to trade. The 2007 China New Plant Variety Show and Transfer Fair will be held in Jiangsu Province in May 2007. More information for the fair is available at: <http://www.aweb.com.cn/>, <http://www.agri.gov.cn/> and <http://www.seedchina.com.cn/>

Policy Issues

Amendments to China's Seed Law has Limited Market Impact

In August 2004, China published changes to Articles 17 and 33 of its Seed Law. See GAIN reports CH4063 and CH0031 for details. The Seed Law Implementation Measures (CH1052) and the Interim Articles from Crop Seed (Seedling) Import and Export (CH4060) are not affected. Nevertheless, MOA said some problems surfaced along with the rapid development of the seed sector. Industry sources said the problems focus on "new variety approval structure", "market access mechanism" and "market management system". In response to some questions raised by the industry, on January 26, 2006, MOA issued a circular clarifying the definition and coverage of some articles of the Seed Law. There are no reports on any negative trade impact as a result of these clarifications. Post will report on any additional changes regarding these amendments.

Industry sources report there is no significant improvement on the enforcement of the Seed Law and relevant rules and regulations. Official statistics are not available on IPR infringement and counterfeit cases for MY05/06. Industry sources reported that the low

threshold for new variety review and approval provoked IPR infringement. Along with the increased applications for new varieties, more “new varieties” share similar characters and traits. According to MOA, as of the end of October 31, 2006, the total approved corn and rice varieties reached 390 and 274, respectively.

On January 12, 2006, MOA published Decree 56, the Administrative Measures for Grass Seeds (CH6008), but did not notify the World Trade Organization (WTO). However, trade contacts report these measures do not change the existing import and marketing policy. Nonetheless, Post contacted the relevant Chinese authorities and requested that they comply with the WTO SPS notification requirements by notifying this decree. The measures took effect on March 1, 2006. Post has received no complaints since the implementation of the Decree.

Labeling - On October 20, 2006, China issued its National Standard “General Directive for Labeling of Agricultural Seeds” which took effect November 1, 2006. The Standard was notified to the WTO in October 2005. Post sent an unofficial English translation to the relevant U.S. agencies and industry associations. In general, the mentioned standard was a combination of the existing rules and regulations. As of this report, there have been no complaints by seed traders on the enforcement of the standard.

Agricultural commodity import regulations remain in place

China’s Animal and Plant Quarantine Law (CH1051), its Implementation Regulations (CH3110), the Administrative Measures (CH2039), and the “items on Handling Review and Approval of Entry Animal and Plant Quarantine” (CH4020) establish procedures for importers wishing to purchase propagating material, including seed. Essentially, importers must apply for a Quarantine Import Permit (QIP) before signing any contract. Only with a QIP (valid for six months), is it permissible to sign a contract to import seeds.

Planting seed phytosanitary and licensing restrictions

Corn and soybean seeds imports are still prohibited because of quarantine restrictions on “Stewart’s Wilt” and “Phytophthora Megasperma”. As for other planting seeds, both the requirements for “main crops” variety approval, as well as licensing requirements for seed production and marketing, place arbitrary restrictions on the seed trade.

Industry sources indicate importers of certain seeds have been asked to submit an annual import plan to MOA and China’s State Forestry Administration (SFA). The statutory basis for this requirement, however, is unclear. Government offices reportedly use the information when deciding how to award VAT-free import approvals.

Exporters of U.S. planting seeds should contact the USDA Foreign Agriculture Service Planting Seeds Division (www.fas.usda.gov/cots/seeds.html), APHIS officers (www.aphis.usda.gov/is/tst/RegionThree.html), and the American Seed Trade Association (www.amseed.com/) and the Oregon Seed Council (forages.oregonstate.edu/organizations/seed/oscl/) to understand the process and regulations for planting seed exports to China. Exporters should be aware, however, that final import approval of any product is subject to the importing country’s rules and regulations as interpreted by border officials at the time of product entry. Therefore, it is particularly valuable to ensure that importers are familiar not only with published rules but also the customary practices.

Seed tariffs and the value added tax (VAT)

China has tariff-rate quotas for seed wheat, rice, corn, and a few other non-grain commodities¹. In-quota wheat, corn, and rice seed are subject to a 1 percent tariff, while all other planting seeds enter tariff-free. Out-of-quota tariffs for seed corn are 20 percent, while out-of-quota tariffs for wheat and rice are 65 percent (See CH6036).

The VAT-free policy on seed imports remained enforced in 2006, and will remain in place during China's "11th Five-Year Plan" (2006-2010) period. The VAT exemption procedure, however, lacks transparency and efficiency. Industry sources report that, in the current VAT-free regime, within each year of the plan, usually during April or May, the relevant government offices send circulars or other internal notices to customs officials confirming what products and companies have VAT-free status. There are also tedious procedures for a company to be registered in the importation of seeds. This confusing system leads to an instable market because importers and the companies they represent cannot book seeds for shipment from the beginning of the year to the time the Customs Offices are notified by the above-mentioned VAT Exemption Circular/Notice.

Plant variety protection (PVP) background and development

On October 20, 2005, China filed its endorsement letter to FAO recognizing the 1997 amended version of International Plant Protection Commission (IPPC), and thus becoming the 141st member of the treaty. The official liaison office is affiliated with MOA. China has legally recognized the 1978 version of the International Convention for the Protection of New Varieties of Plants (UPOV) effective since October 1, 1997 (CH7023). MOA and SFA are responsible for reviewing PVP applications. China's UPOV membership obligates China to honor, sui generis, the breeders' rights for registered and approved novel, distinct, uniform and stable (DUS) seeds.

Government Offices Responsible for PVP Applications and Development	
Ministry of Agriculture PVP Office	State Forestry Administration's PVP Office
No. 11 Nongzhanguannanli	No. 18 Hepingli Dong Jie
Chaoyang District	Chaoyang District
Beijing, China 100026	Beijing, China 100714
Tel: 86-10 64193029/65927554	Tel: 86-10 84238883
Fax: 86-10 64194661	Fax: 86-10 64213084
E-mail: chenhong@agri.gov.cn	E-mail: webmaster@cnpvp.net
Web: www.cnpvp.cn	Web: www.cnpvp.net
Web2: www.stee.agri.gov.cn	

MOA reports that from the time it began accepting applications in 1999 through October 31, 2006, the PVP office received 3,616 applications for new PVP. At present, 892 applications have been completely reviewed and approved. The greatest number of applications and approvals are for major field crops including corn, rice, wheat, soybeans, and rapeseed. According to MOA, the number of applications for corn, rice and wheat in this order rank as the top three, and respectively accounting for 39, 31 and 10 percent. The total approved corn and rice varieties reached 664, accounting for 74 percent of the total approved plant varieties. Total applications for 2006 (as of October 31) are slightly lower than the same period of 2005. Agricultural research institutes and universities/colleges filed 58 percent of the applications as compared to the 38 percent by domestic seed enterprises and individuals. It is worth noting that the applications by seed enterprises and individuals increased in the past two years. Additionally, MOA indicates eight out of the 132 foreign applications it received for new PVP were reviewed and approved. As of November 2005, SFA also received

¹ This is allowed under China's WTO accession agreement.

about 427 applications, including 100 by foreign enterprises. A total of 121 applications completed the review and approval process. At present, there is one MOA distinctiveness, uniformity and stability (DUS) testing center, 14 DUS sub-centers, and 21 SFA testing agencies around the country. According to MOA and SFA, more new testing laboratories will be established in the "11th Five-Year" period. To ensure scientific and authoritative determination of plant variety rights, China formulated guidelines for testing 80 new varieties of plants, including corn, rice, poplar and peony, of which 18 have been promulgated and implemented as the "national or industrial standards".

On January 18, 2006, the National Technical Committee for Plant New Variety Testing Standardization was established. The committee, affiliated to MOA but including experts from SFA and Ministry of Science and Technology (MOST), is aimed to lend technical support for PVP management practices.

Intellectual property rights (IPR) issues for planting seed enterprises

Despite the implementation and enforcement of IPR laws and regulations, IPR infringement and counterfeit cases occur frequently. According to MOA, cumulatively IPR infringement and counterfeit cases reached 299 and 564 as of the end of 2004, respectively. Though no official statistics are available for MY05/06, industry sources said no significant improvement has been made in the past two years. Industry sources report that trademark or copyright registration will facilitate marketing and IPR protection.

Seed sold in counterfeit packages identical to legitimate brand names is the most frequent problem for seed companies. Other IPR crimes include theft of seed/germplasm from production fields or facilities that is then bred and marketed by other companies. Seed companies also report demands for restitution for "inferior quality" seeds sold by counterfeiters.

GAIN report CH2049 provides information on how to access UNOFFICIAL English translations of China's Copyright Law, Trademark Law, and Patent Law along with the Implementation Regulations or Enforcement Measures for each of the aforementioned.

Biotechnology and planting seeds

Transgenic crops and seeds need to be approved by the National Biosafety Committee (NBC) after environmental and food safety evaluations by MOA and government affiliated institutes. China is the world's largest investor in transgenic seed technology, with the exception of the United States. China has commercialized four genetically modified plants since 1997, including cotton, tomatoes, sweet peppers and petunias. Although there are no official statistics, some experts reported the development of over 100 transgenic crops with about 60 already in field trials, including rice, corn, wheat, soybeans and peanut etc. Although biotech (BT) cotton has been widely planted, China has yet to approve any major food crop for environmental release. MOA has approved one soybean, seven canolas, eight corn, and two cotton varieties for import and processing, but none for commercial planting. MOA is drafting 51 transgenic crop testing and safety evaluation standards in anticipation of increased transgenic crop development.

Once granted MOA safety approval, transgenic seeds must then undergo examination for distinctness, uniformity, and stability (DUS) by PVP examiners. China's PVP office drafted new DUS testing guidelines for corn and rice, thereby lending speculation that if transgenic corn and rice events receive safety approval, the process for PVP testing for those seeds can move forward quickly and transparently.

The approval process so far has proved cumbersome and non-transparent. China's biotechnology regulations require foreign introduced transgenic events to first receive

approval abroad and then undergo subsequent evaluation in China. This is a painstaking process not only for commercial shipments containing transgenic commodities, but also for the adoption of future transgenic seeds in countries that export to China.

Many scientists and economists recognize the potential benefits of commercializing transgenic planting seeds. Analysts point out that not only will state-sponsored research institutes benefit from licensing technology to seed companies, but farmers would also benefit from lower direct and indirect costs, increased yields, and lower pesticide applications. Official studies demonstrate both the economy and the environmental benefits, including the elimination of hundreds of accidental pesticide poisonings.

Turf Seeds and Nursery Seedlings

Imports of grass seeds for MY06/07 are expected to increase due to the allocation of government funds for grassland restoration in western provinces and the desertification prevention program in the North part of Beijing and Tianjin. Part of these funds (in total \$250 million) will be used to purchase grass/forage seeds. MY05/06 imports of grass and forage seeds valued at \$32 million, up from the \$26.4 million for MY04/05. Demand for turf seeds and nursery seedlings remains strong as efforts to beautify urban areas with landscaping projects have intensified. Planting of grass and nursery products in parks, zoos, and on roadsides has also grown sizably (see the following table). The long-term outlook for urban beautification/green space design includes planting more trees, shrubs, and grass, not only in the biggest metropolitan areas like Beijing, Shanghai, Guangzhou, and Dalian, but also in smaller cities. Based on the SFA's 11th Five-Year (2006-2010) Forestry Plan, China's cities' urban green area will reach 8 square meters per urban dweller by 2010, from the present 6.5.

Urban Green Space	2000	2002	2003	2004	2005
Public Green Areas (10,000 Ha)	86.5	107.2	121.2	132.2	146.8
Public Green Area per person in sq. m.	3.7	5.4	6.5	NA	NA
Area of Parks and Zoos (10,000 Ha)	8.2	10	11.3	13.4	15.8
Number of Parks and Zoos (unit)	4455	5178	5832	6427	7077
*Source: NSB 2005 Yearbook Table 11-12					

The future of urban beautification landscaping and the nursery sector remains bright as Chinese cities clamor to host international events, e.g., the Beijing Olympics, the 2010 World Expo in Shanghai, and other events that draw international visitors and businesses from around the world. Additionally, many cities are spending more money on city landscaping including the construction of more lawns. Constraints to expanding domestic floriculture and sod farms include inadequate water supply, rising water costs, and competition with food crops (less marginal land planted with grass and nursery products). Nursery vendors remain optimistic at the growing interest in importing grass seed, shrubs, and tree seedlings.

Nationwide Horticultural Planting Area (Ha)

	2000	2002	2003	2004	2005
Cut Flowers, Vines, and Potpourri	10,750	18,834	28,842	35,138	38,853
Potted Plants	18,841	39,122	46,626	78,529	60,007
Ornamental Trees	65,588	163,766	233,111	356,011	415,035
Food and Medicinal Flowers	14,801	28,468	51,325	84,382	182,589
Industrial Flowers	29,479	34,870	28,314	39,648	60,339
Grass Sod	11,120	34,107	26,083	23,757	28,341
Flower Seed	1,819	4,381	2,463	4,149	6,015
Young Plants/Seedlings	2,824	8,221	9,415	10,705	14,391
Flower Bulbs	1,281	2,685	3,936	3,685	4,609

Source: Ministry of Agriculture Statistical Abstract

Trade Tables

Table 1 China's Imports from the World in Volume & Value

HS Code	Planting Seeds	Volume (KG)			Value (US\$)		
		MY03/04	MY04/05	MY05/06	MY03/04	MY04/05	MY05/06
	Total	26,379,681	21,398,960	24,587,807	84,285,657	77,508,210	106,100,000
10019010	Wheat	37	1	0	448	1	0
10020010	Rye			0	0	0	0
10030010	Barley	12		0	115	0	0
10040010	Oats		49	0	0	438	0
100510	Corn	39,455	76,267	71,910	313,941	594,049	1,099,000
10061010	Rice			0	0	0	0
10061011	Rice, long grain			0	0	0	0
10061019	Rice, other	217	685	2,000	1,348	21,570	68,000
10070010	Sorghum	103,152	115	363	150,738	194	3,000
10089010	Other cereals	18	0	0	385	0	0
12010010	Soybeans	883	40	1,047	11,386	376	8,000
12021010	Peanuts	2,000	0	0	802	0	0
12051010	Rape/Colza, low erucic acid	4	0	0	41	0	0
12059010	Rape/Colza, nes	219	3	0	30	6	0
12060010	Sunflower	470,345	910,664	1,592,845	2,602,519	5,042,782	13,718,000
12072010	Cotton	12,125	1,906	1,530	14,611	10,655	7,000
12091000	Other sugar beet	115,405	389	1,003	481,536	14,010	4,000
120921	Alfalfa	2,568,822	766,770	129,506	5,239,649	1,477,675	418,000
120922	Clover	1,836,999	1,269,134	2,147,802	4,436,459	3,739,220	7,605,000
120923	Fescue	6,898,855	5,621,940	5,416,877	7,718,600	6,421,425	6,919,000
120924	Kentucky	2,601,294	1,739,080	2,026,502	6,959,801	4,749,913	5,211,000
120925	Rye grass	4,253,106	2,784,158	2,670,556	4,365,468	2,828,405	3,059,000
120930	Herbaceous	419,201	225,380	171,938	4,975,058	4,405,003	4,400,000
120926	Timothy	28,872	22,007	0	111,000	61,000	0
12092910	Sugar beet	115,848	420,361	341,250	699,998	2,359,938	3,026,000
12092990	Other Forage	1,317,203	872,579	2,338,199	3,707,130	2,811,350	4,551,000
120999	Fruit, Melon and Other	N/A	944,774	1,174,728	8,079,538	4,776,372	6,193,000
120991	Vegetable	5,595,609	5,742,658	6,499,751	34,415,056	38,193,828	49,811,000

Source: World Trade Atlas

Table 2 China's Imports from the U.S. in Volume & Value

HS Code	Planting Seeds/MY	Volume (KG)			Value (US\$)		
		MY03/04	MY04/05	MY05/06	MY03/04	MY04/05	MY05/06
	Total	13,444,687	11,357,704	11,542,168	29,866,256	26,957,979	35,857,000
10019010	Wheat	3	0	0	58	0	0
10020010	Rye	0	0	0	0	0	0
10030010	Barley	12		0	115	0	0
10040010	Oats	0	0	0	0	0	0
100510	Corn	0	4	0	0	6,096	0
10061010	Rice	0	0	0	0	0	0
10061011	Rice, long grain	0	0	0	0	0	0
10061019	Rice, other	0	0	0	0	0	0
10070010	Sorghum	0	0	0	0	0	0
10089010	Other cereals	0	0	0	0	0	0
12010010	Soybean	0	0	0	0	0	0
12021010	Peanut	0	0	0	0	0	0
12051010	Rape/Colza, low erucic acid	0	0	0	0	0	0
12059010	Rape/Colza, nes	0	0	0	0	0	0
12060010	Sunflower	372,353	618,820	1,238,036	1,922,193	3,578,363	9,637,000
12072010	Cotton	955	1,881	0	7,902	10,449	0
12091000	Other sugar beet	22	0	0	545	41	0
120921	Alfalfa	56,353	62,504	15,000	207,803	202,961	84,000
120922	Clover	22,948	10,000	24,947	49,612	32,000	80,000
120923	Fescue	6,325,012	5,424,585	4,722,736	7,127,308	6,202,667	6,071,000
120924	Kentucky	2,030,153	1,615,980	1,804,908	5,809,135	4,492,683	4,777,000
120925	Rye grass	3,544,715	2,518,558	2,006,901	3,299,009	2,397,515	2,258,000
120930	Herbaceous	18,057	46,924	7,087	2,639,490	2,399,636	2,409,000
120926	Timothy	14,232	10,001	0	77,000	35,000	0
12092910	Sugar beet	0	0	0	0	0	0
12092990	Other forage	862,058	568,107	615,267	2,860,258	2,327,836	2,680,000
120999	Fruit, Melon & Other	N/A	138,731	627,722	1,964,330	874,885	2,994,000
120991	Vegetable	197,814	341,609	479,564	3,901,498	4,397,847	4,867,000

Source: World Trade Atlas

Table 3 China's Major Seed Imports and Major Countries of Origins

Clover Imports Volume and Major Origins (in KG)			
Country	MY 03/04	MY04/05	MY05/06
Australia	1219877	806984	1535800
New Zealand	149199	0	209259
Canada	151000	311650	148000
United States	22948	10000	24947
Others	293975	140500	229796
TOTAL	1836999	1269134	2147802
Fescue Seeds Imports Volume and Major Origins (in KG)			
Country	MY 03/04	MY04/05	MY05/06
United States	6,325,012	5,424,585	4,722,736
Denmark	352,729	58,830	426,111
Canada	180,935	138,525	267,964
Total	6,898,855	5,621,940	5,416,877
Kentucky Seeds Import Volume and Major Origins (in KG)			
Country	MY 03/04	MY04/05	MY05/06
United States	2,030,153	1,615,980	1,804,908
Denmark	454,925	123,100	201,575
Total	2,601,294	1,739,080	2,026,502
Rye Grass Imports Volume and Major Origins (in KG)			
Country	MY03/04	MY04/05	MY05/06
United States	3,544,715	2,518,558	2,006,901
Denmark	349,900	158,000	264,725
Canada	2,041	0	175,946
Netherlands	40,000	60,000	75,975
Total	4,253,106	2,784,158	2,670,556
Herbaceous Imports Volume and Major Origins (in KG)			
Country	MY03/04	MY04/05	MY05/06
United Kingdom	289,285	18,166	99,395
Poland	0	0	44,000
Netherlands	3,768	3,041	12,996
United States	18,057	46,924	7,087
Total	419,201	225,380	171,938
Other Forage Imports Volume and Major Origins (in KG)			
Country	MY03/04	MY04/05	MY05/06
Canada	75,000	44,100	1,305,531
United States	862,058	568,107	615,267
China	0	0	280,000
Denmark	71,065	61,985	125,894
Total	1,317,203	872,579	2,338,199

Source: World Trade Atlas

Table 3 (continued)

Sunflower Planting Seed Imports Volume and Major Origins (in KG)			
Country	MY03/04	MY04/05	MY05/06
United States	372,353	618,820	1,238,036
Australia	66,480	184,893	140,387
Israel	29,100	41,740	95,776
India	210	40,018	64,202
Total	470,345	910,664	1,592,845
Fruit, Melon and Other Import Volume and Major Origins (in KG)			
Country	MY03/04	MY04/05	MY05/06
United States	244,073	138,731	627,722
Taiwan	804,555	420,322	220,277
Thailand	185,179	205,368	78,463
Canada	67,542	339	73,097
Australia	54,622	54,154	68,151
Total	1,687,730	944,774	1,174,728
Vegetable Import Volume and Major Origins (in KG)			
Country	MY03/04	MY04/05	MY05/06
Thailand	2,227,317	2,216,903	2,399,937
Japan	770,377	757,396	791,999
Australia	1,225,818	797,161	783,013
United States	197,814	341,609	479,564
Germany	1,972	80,138	463,007
Denmark	406,795	359,204	421,522
Indonesia	177,260	556,424	404,223
New Zealand	211,704	115,957	256,979
Total	5,595,609	5,742,658	6,499,751

Source: World Trade Atlas

Table 4 China's Exports to the World in Volume & Value

HS Code	MY (Jul-Jun)	Volume (KG)			Value (US\$)		
	Planting Seeds	MY03/04	MY04/05	MY05/06	MY03/04	MY04/05	MY05/06
	Total	23,139,990	26,441,290	30,548,936	49,463,463	60,503,914	75,131,000
10019010	Wheat	3,100	300,001	84	3,160	60,001	0
10020010	Rye	0	304,400	1,200	0	136,205	1,000
10030010	Barley	25,513	244,500	29,214	6,042	61,050	12,000
10040010	Oats	31,900	45,500	0	18,316	16,586	0
100510	Corn Seed	372,820	347,614	128,434	282,954	313,756	146,000
10061010	Rice Seed	0	0	0	0	0	0
10061011	Rice Long Grain	2,668,755	10,867,943	11,200,613	2,295,999	9,381,635	10,690,000
10061019	Rice Other	9,928,154	2,107,649	1,835,045	10,001,820	3,238,256	2,462,000
10070010	Sorghum	31,480	9,257	6,580	47,020	15,872	10,000
10089010	Other Cereals	40,424	9,173	1,990	11,625	16,524	1,000
12010010	Soybeans	100,805	151,858	240,492	59,688	138,546	119,000
12021010	Peanuts	50,100	90,600	0	32,483	56,170	0
12051010	Rape/Colza, low erucic acid	0	0	1,740	0	0	3,000
12059010	Rape/Colza, nes	212,945	22,125	15,001	60,028	13,593	2,000
12060010	Sunflower Planting	105,117	81,345	102,055	104,482	244,307	236,000
12072010	Cotton Planting	288,096	171,268	224,181	709,966	427,666	897,000
12092910	Other Sugar Beet			0	0	0	0
120921	Alfalfa	110,093	2,936,865	3,864,435	143,542	3,821,498	4,326,000
120922	Clover	0	3,350	0	0	8,620	0
120923	Fescue	840	20,000	103,073	1,415	30,400	133,000
120925	Rye Grass	7,255	18,070	0	6,646	44,422	0
120930	Herbaceous	287,824	618,713	819,203	3,183,770	4,744,890	5,619,000
120926	Timothy	9,268	3,000	8,000	55,000	10,000	13,000
12091000	Sugar Beet	58	536	24,054	873	1,044	74,000
12092990	Other Forage	2,524,267	2,337,536	4,363,414	2,770,193	2,891,030	5,618,000
120999	Fruit, Melon and Other	662,806	1,147,914	1,030,052	4,808,440	6,028,404	6,989,000
120991	Vegetable	5,678,370	4,602,073	6,550,076	24,908,355	28,769,017	37,780,000

Source: World Trade Atlas

Table 5 China's Exports to the U.S. in Volume and Value

	MY (Jul-Jun)	Volume (KG)			Value (US\$)		
HS Code	Planting Seeds	MY03/04	MY04/05	MY05/06	MY03/04	MY04/05	MY05/06
	Total	649,863	766,517	1,140,797	8,958,984	10,026,632	13,501,000
10019010	Wheat	0	0	0	0	0	0
10020010	Rye	0	0	0	0	0	0
10030010	Barley	0	0	0	0	0	0
10040010	Oats	0	0	0	0	0	0
100510	Corn	0	0	0	0	0	0
10061010	Rice	0	0	0	0	0	0
10061011	Rice Long Grain	0	0	0	0	0	0
10061019	Rice Other	0	0	0	0	0	0
10070010	Sorghum	0	0	0	0	0	0
10089010	Other Cereals	0	1,936	0	0	7,373	0
12010010	Soybeans	0	119,010	0	0	52,364	0
12021010	Peanuts	0	0	0	0	0	0
12051010	Rape/Colza, low erucic acid	0	0	0	0	0	0
12059010	Rape/Colza, nes	0	0	0	0	0	0
12060010	Sunflower	0	0	0	0	0	0
12072010	Cotton	209,774	14,846	96,102	517,756	37,105	384,000
12092910	Other Sugar Beet	0	0		0	0	
120921	Alfalfa	0	20,175	93,500	0	19,973	35,000
120922	Clover	0	0	0	0	0	0
120923	Fescue	820	20,000	40,052	1,215	30,400	51,000
120925	Rye Grass	0	0		0	0	
120930	Herbaceous	38,099	214,711	227,882	141,974	298,616	423,000
120930	Timothy	0	0	0	0	0	0
12091000	Sugar Beet	0	0	0	0	0	0
12092990	Other Forage	154,949	20,475	113,226	123,112	27192	209,000
120999	Fruit, Melon and Other	34,779	35,945	36,866	537,426	826440	762,000
120991	Vegetable Seeds	211,442	319,419	533,169	7,637,501	8,727,169	11,637,000

Source: World Trade Atlas

Table 6 China's Major Seed Exports and Major Countries of Origins

Other Forage Exports Volume and Major Destinations (in KG)			
Country	MY03/04	MY04/05	MY05/06
Korea, South	1,333,129	1,262,704	3,672,889
Japan	793,302	546,857	405,535
United States	154,949	20,475	113,226
Taiwan	0	0	108,440
Canada	0	240,000	40,000
Total	2,524,267	2,337,536	4,363,414
Rice, Long Grain Exports Volume and Major Destinations (in KG)			
Country	MY03/04	MY04/05	MY05/06
Vietnam	2,402,390	10,149,905	9,608,941
Bangladesh	199,560	546,440	1,131,077
Pakistan	20,000	120,000	350,519
Spain	0	0	98,000
Guinea	44,600	41,200	10,000
Total	2,668,755	10,867,943	11,200,613
Vegetable Seed Exports in Volume and Major Destinations (in KG)			
Country	MY03/04	MY04/05	MY05/06
Korea, South	2,055,361	1,267,537	1,935,511
Netherlands	932,229	877,847	1,040,098
Italy	72,162	309,584	614,287
United States	211,442	319,419	533,169
France	177,852	386,791	435,638
Thailand	136,140	218,683	294,524
Japan	274,815	311,622	280,378
Total	5,678,370	4,602,073	6,550,076
Fruit, Melon & Other Exports in Volume and Major Destinations (in KG)			
Country	MY03/04	MY04/05	MY05/06
Korea, South	243,296	583,300	536,371
Japan	188,863	340,418	228,083
Malaysia	1,487	5,881	50,608
France	2,305	8,309	37,858
United States	34,779	35,945	36,866
Taiwan	10,902	49,536	35,582
Netherlands	23,813	19,626	30,320
India	37,615	22,902	22,893
Total	662,806	1,147,914	1,030,052

Source: World Trade Atlas